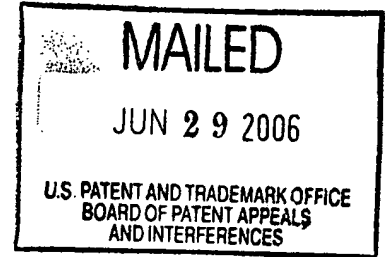


The opinion in support of the decision being entered today was not Written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte PAUL A. GEEL



Appeal No. 2006-1587  
Application No. 10/020,768

ON BRIEF

Before GARRIS, TIMM and FRANKLIN, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1 through 8 and 11 through 24.

Independent claim 1 is representative of the subject matter on appeal and is set forth below:

1. A wet-laid nonwoven reinforcing mat, comprising:

(a.) a base web including about 10 to less than 50 percent by weight glass fibers, about 50 to about 90 percent by weight polyethylene terephthalate fibers having a diameter of from about 6 to about 12 microns and polyvinyl alcohol in an amount of about 16 to about 35 percent of the combined weight of the glass fibers and the polyethylene terephthalate fibers; and

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(b.) a secondary binder in an amount of about 12 to about 30 percent of the combined weight of said glass fibers, polyethylene terephthalate fibers and polyvinyl alcohol.

The Examiner relies upon the following references as evidence of unpatentability:

Heidweiller	3,622,445	Nov. 23, 1971
Kinsley, Jr. (Kinsley)	5,800,675	Sep. 1, 1998
Helwig et al. (Helwig '879)	5,935,879	Aug. 10, 1999
Helwig et al. (Helwig '843)	6,267,843	Jul. 31, 2001
Helwig et al. (Helwig '001)	6,365,001	Apr. 2, 2002

Claims 1 through 8, 11, 13 through 18 and 21 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller.

Claims 19, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller in view of Helwig '843.

Claims 20 and 24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller in view of Kinsley.

Claims 1 and 6 stand rejected under 35 U.S.C. § 103(a) as being obvious over Helwig '879.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being obvious over Helwig '879 in view of Helwig '001.

To the extent that the commonly-rejected claims have been separately argued, they will be individually considered in our assessment of the respective rejections advanced on this appeal. See In re Dance, 160 F.3d 1339, 1340, n.2, 48 USPQ2d 1635, 1636 n. 2 (Fed. Cir. 1998). Also see 37 CFR § 41.37(c)(1)(vii) (September 2004).

**OPINION**

For the reasons set forth in the Answer and below, we sustain each of these rejections.

**Rejection under 35 U.S.C. § 103(a) over Heidweiller**

Claims 1 through 8, 11, 13 through 18 and 21 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller.

Heidweiller discloses a reinforcing fiber web comprising a base web including glass fibers and organic fibers with the ratio by weight between the glass fibers and the organic fibers ranging from 10:1 to 1:1 (col. 1, lines 60-67). According to the Examiner, this translates to 50-100% glass fibers and 10-50% organic fibers (Answer, page 3).<sup>1</sup> Heidweiller also teaches the use of a polymeric binder in an amount of "preferably 5-50 percent by weight, calculated on the total weight of the web" (col. 2, lines 69-70). The binder may be polyvinyl alcohol (col. 2, line 55). While Heidweiller does not specifically state that a secondary binder is added, the Examiner states that "[t]he polyvinyl alcohol binder of Heidweiller is equated to the Applicant's 'polyvinyl alcohol' and 'secondary binder'" (Answer, paragraph bridging pages 3 and 4). Appellant has not disputed this statement.

In addition, Heidweiller teaches that polyethylene glycol terephthalate fibers can be used as the organic fibers (Example II, col. 4, lines 1-4). Heidweiller does not explicitly teach the diameter of the organic fibers. However, the Examiner

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<sup>1</sup> Our calculations reflect a glass fiber content of 50-91% and an organic fiber content of 9-50%.

calculates the diameter of the polyethylene glycol terephthalate fibers used in Example II to be 12.4 microns (Answer, page 3).

The Examiner and the Appellant agree that the subject matter of claim 1 differs from Heidweiller in that the reference does not specifically teach a non-woven fibrous web with a glass fiber content of about 10 to less than 50% by weight and polyethylene terephthalate fibers with a diameter of from about 6 to about 12 microns as required by claim 1 (Answer, page 5; Brief, page 8). The Examiner argues that glass fiber content and polyethylene terephthalate diameter are "result effective variables" (Answer, paragraph bridging pages 5 and 6) and relying on In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980), states that "it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art" (Answer, page 6). Thus, it is the Examiner's conclusion that claim 1 is obvious over Heidweiller because "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to create a web with [sic, where] glass fibers are present in the weight of about 10 to less than 50% and the polyethylene terephthalate fibers have a diameter of from about 6 to [about] 12 microns as required by claim 1" (Answer, page 6). We agree.

We first address the glass fiber content. We note that independent claim 1 includes an upper limit for the glass fiber content of less than 50% by weight. In contrast, and as acknowledged by the Examiner and the Appellant, 50% glass fiber content is the lowest amount specifically taught by Heidweiller. Thus, the claimed range is contiguous with the prior art range.

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The Examiner concludes that the glass fiber content would have been obvious to one having an ordinary level of skill in this art because it is "a result effective variable [that] is optimizable to Applicant's claimed range" (Answer, page 14). The Examiner's obviousness conclusion is supported by long standing legal authority. See In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990); In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Compare In re Sebek, 465 F.2d 904,907, 175 USPQ 93, 95 (CCPA 1972).

In this instance, the claimed glass fiber content of less than 50% by weight and Heidweiller's lowest range glass fiber content of 50% by weight are "so close that prima facie one skilled in the art would have expected them to have the same properties." Titanium Metals Corp. v. Banner, 778 F.2d 775, 782-83, 227 USPQ 773, 779 (Fed. Cir. 1985).

Appellant argues that "it is the obviousness or nonobviousness of the subject matter that must be determined and it is here that secondary considerations are relevant to the determination of patentability" (Brief, page 9). Further, Appellant argues "secondary considerations all weigh on the side of finding nonobviousness and in fact support the patentability of the present invention" (id.). In this regard, Appellant argues that "Heidweiller set the 'industry standard' for glass fiber content in reinforcing mat products at greater than 50% [sic, equal to or greater than 50%] back in 1971" (id.). Appellant contends that this "standard remained in place through at least 1996 when Helwig et al. [Helwig '843] filed for

protection on a reinforcing mat also including 50 to 95% by weight glass fibers" (id.). It is Appellant's position that "the present invention [of a nonwoven fibrous web with about 10 to less than 50% glass fibers] represents a change in course for the industry after [over] 30 years of product development" (Brief, page 10). Thus, Appellant contends that "[t]here is no logical basis from which one could conclude that such a change would be obvious to those skilled in the art" (id.).

We are not persuaded by the Appellant's "industry standard" argument. The evidence of an "industry standard" consists solely of the patents to Heidweiller and Helwig '843. Significantly, neither of these patents teaches that the glass fiber content ranges thereof are "industry standards" or that glass fiber contents below 50% are unacceptable. Under these circumstances, the argument and evidence of record are insufficient to convince us that a glass fiber content of less than 50%, such as 49.95%, would not have been obvious to an artisan. On the contrary, an artisan would have used a glass fiber content of, for example 49.95%, based on a reasonable expectation that the resulting mat would have the same successful properties as Heidweiller's 50% glass fiber content mat. Titanium Metals Corp., 778 F.2d at 782-83, 227 USPQ at 779. Also see In re O'Farrell, 853 F.2d 894,904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (For obviousness under §103, all that is required is a reasonable expectation of success).

We now address the diameter of the polyethylene terephthalate fiber. We note that independent claim 1 includes an upper limit for the diameter of the polyethylene

terephthalate fiber of "about 12 microns." As acknowledged by the Examiner and the Appellant, Heidweiller does not explicitly teach the diameter of the organic fibers (Answer, page 3; Brief, page 8). Nevertheless, the Examiner calculates the diameter to be 12.4 microns (Answer, page 3). As with the glass fiber content, the Examiner concludes that the diameter of the polyethylene terephthalate fiber would have been obvious to one having an ordinary level of skill in this art because it is "a result effective variable [that] is optimizable to Applicant's claimed range" (Answer, page 15). Following the Examiner's methodology, and assuming that the full range of Heidweiller's disclosed deniers apply to the polyethylene terephthalate, Appellant calculates the diameter range for Heidweiller's polyethylene terephthalate fibers to be from 12.4 to 71.5 microns, a range that Appellant states is "well outside the claimed range" (Brief, page 8).

We find ourselves once more addressing the issue where the upper limit of a claimed range (about 12 microns) and the lower limit of the range calculated for Heidweiller's polyethylene terephthalate fibers are "so close that prima facie one skilled in the art would have expected them to have the same properties." Titanium Metals Corp., 778 F.2d at 782-83, 227 USPQ at 779. We agree with the Examiner for reasons presented above. The Appellant's argument is insufficient to convince us that a polyethylene terephthalate fiber with a diameter of "about 12 micron," such as 12.1 microns, would not have been obvious to an artisan based on the 12.4 micron diameter of Heidweiller's fibers. On the contrary, an artisan would have

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used polyethylene terephthalate fibers with a diameter of "about 12 microns," for example 12.1 microns, based on a reasonable expectation that the resulting mat would have the same successful properties as Heidweiller's mat containing polyethylene terephthalate fibers with a diameter of 12.4 microns. Id. See also In re O'Farrell, 853 F.2d at 904, 7 USPQ2d at 1681.

We note that Appellant argues that "the present invention differs from the cited prior art to Heidweiller in two respects" (Brief, page 8) and that "the two distinctions considered together, establish patentability beyond a reasonable doubt" (Brief, page 10). That is, Appellant argues that "the Heidweiller patent teaches away from the present invention in two respects" (id.). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." In re Kahn, 441 F.3d 977, 990, 78 USPQ2d 1329, 1338 (CAFC 2006) (citing In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994)). We find nothing in Heidweiller that discourages a person having ordinary skill in the art from using a glass fiber content of less than 50% by weight or a diameter for the polyethylene terephthalate of about 12 microns (or less). Therefore, we cannot agree with Appellant that Heidweiller teaches away. Moreover, contrary to Appellant's belief, the presence of two claim distinctions does not "establish patentability beyond a reasonable doubt" (Brief, page 10). See Titanium Metals Corp.,



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778 F.2d at 782-83, 227 USPQ at 779, wherein an obviousness conclusion was upheld notwithstanding plural claim distinctions.

Claims 2-8, 11, 15, 16 and 21 were not separately argued and, therefore, stand or fall with independent claim 1.

Regarding claim 13, Appellant argues that this claim "provides that the base web includes glass fibers in an amount of about 25 to about 40% by weight of the fibers" and that "[t]his lower weight percentage further distances the claimed invention from the Heidweiller patent" (Brief, page 11). The Examiner maintains the position that this limitation is a result effective variable (Answer, page 16).

As we point out above, the Examiner's position is supported by long standing legal authority. Woodruff, 919 F.2d at 1578, 16 USPQ2d at 1936-37; Boesch, 617 F.2d at 276, 205 USPQ at 219; Aller, 220 F.2d at 456, 106 USPQ at 235. While Appellant attempts to distinguish Woodruff on the basis that the ranges at issue in Woodruff were contiguous, such a per se rule is not law. Ranges do not have to be contiguous to support a prima facie case of obviousness. See, for instance, Aller, which held that "where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." Aller, 220 F.2d at 456, 105 USPQ at 235. Moreover, other cases support obviousness where there is no overlap in ranges but a more general discussion. See In re Huang, 100 F.3d 135, 139, 40 USPQ2d 1685, 1688-89 (Fed. Cir. 1996) (affirming the rejection of claims requiring thickness ratios above those employed in the prior art); In re Schwarze, 536 F.2d 1373, 1377, 190 USPQ 294,

296 (CCPA 1976) (affirming an obviousness rejection of a claim to a chemical process in which the first stage was conducted at 0-50° C when the prior art process conducted the first stage at 60-90° C); In re Hill, 284 F.2d 955, 958-59, 128 USPQ 197, 199 (CCPA 1960) (affirming an obviousness rejection of a claim to a chemical process conducted at 150-250° C when the prior art disclosed the same reaction at 300° C). Here, as evidenced by the Figure of Heidweiller, the properties of the mixtures of fibers were known and the same or similar results have been reasonably expected at the here claimed 40% content. O'Ferrell, 58 F.2d at 904, 7 USPQ2d at 1581. This knowledge of the general conditions is the basis for the case of prima facie obviousness. Therefore, it is our determination that the Examiner has established a prima facie case of obviousness regarding the subject matter of claim 13 which the Appellant has failed to successfully rebut with argument or evidence of nonobviousness.

Regarding claim 14, Appellant argues that this claim provides that the base web includes polyethylene terephthalate fibers in an amount of about 60 to about 75% by weight and that Heidweiller "cannot possibly teach or suggest" this amount as it requires at least 50% by weight of glass fibers (Brief, page 12). The Examiner also maintains the position that this limitation is a result effective variable (Answer, page 16). We find Appellant's arguments to mirror the arguments regarding claim 13 and, as indicated above, we conclude that one skilled in the art would have had a reasonable basis for expecting that a 60% polyethylene terephthalate fiber amount would have the

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same successful properties as Heidweiller's 50% polyethylene terephthalate fiber amount. Id.

Appellant's arguments regarding claim 17 also mirror the arguments for claims 13 and 14. We refer to our discussion above.

Claim 18 was not separately argued and, therefore, stands or falls with claim 17.

In light of the foregoing, it is our ultimate determination that the reference evidence adduced by the Examiner establishes a prima facie case of obviousness which the Appellant has failed to successfully rebut with argument or evidence of nonobviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Accordingly, we hereby sustain this rejection of claims 1 through 8, 11, 13 through 18 and 21 as being unpatentable over Heidweiller.

**Rejection under 35 U.S.C. § 103(a) over Heidweiller in view of Helwig '843**

Claims 19, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller in view of Helwig '843.

The Examiner cites Helwig '843 to meet the limitation of claims 19 and 22 of a polyvinyl alcohol binder in the form of a fiber having "a diameter of [from] about 6 to 16 microns and a length of about 4 to about 25mm" (Answer, page 7). According to the Examiner, "it would have been obvious to one of ordinary skill in the art at the time the invention was made to use binder fibers with a length of 4mm and a fiber diameter of 12

microns as suggested by Helwig ['843] in the invention of Heidweiller motivated by the expectation of successfully practicing the invention of Heidweiller" (Answer, page 8). Regarding claim 23, the Examiner acknowledges that the combination of Heidweiller and Helwig '843 "discloses the claimed invention except for that the polyvinyl alcohol fiber has a diameter of between about 6 to 11 microns as required by claim 23 and the base web has about 10 to less than 50% by weight of glass fibers as required by claim 22" (id.). The Examiner states "that the diameter of the polyvinyl alcohol fiber and the weight percentage of glass fibers are result effective variables" (id.). According to the Examiner, "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to create a polyvinyl alcohol fiber with a diameter of between 6 and 11 microns as required by claim 23 and the base web has [sic, having] 10 to less than 50% by weight of glass fibers as required by claim 22, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art" (id.).

Regarding claim 19, Appellant once more highlights the glass fiber content, polyethylene terephthalate fiber content and diameter as the distinguishing characteristics of the claimed invention (Brief, page 13). Appellant further argues that Helwig '843 "is silent as to the diameter of any polyethylene terephthalate fibers and, accordingly, does nothing to address this shortcoming of the primary reference to Heidweiller" (Brief, page 14). Regarding claims 22 and 23,

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Appellant argues that these claims require a glass fiber content of less than 50% by weight (id.).

We have addressed these arguments above with respect to Heidweiller and have found them unconvincing. For this reason and because Appellant has not contested the Examiner's proposed combination of Heidweiller and Helwig '843, we affirm this rejection for the reasons given above.

**Rejection under 35 U.S.C. § 103(a) over Heidweiller in view of Kinsley**

Claims 20 and 24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Heidweiller in view of Kinsley.

The Examiner cites Kinsley for the limitation requiring polyvinyl alcohol in powder form with a particle size of 50-250 microns (Answer, page 10). The Examiner states that Kinsley's "preferred binder is a polyvinyl alcohol powder . . . [with] a dry size diameter of 88-220 microns and a swollen size diameter of 176-440 microns" (Answer, page 10). According to the Examiner, "it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a binder with a dry size diameter of 88-220 microns as suggested by Kinsley, Jr. in the invention of Heidweiller motivated by the expectation of successfully practicing the invention of Heidweiller" (Answer, page 10). The Examiner acknowledges that the combination of Heidweiller and Kinsley "discloses the claimed invention except for that the base web has about 10 to less than 50% by weight of glass fibers" as required by claim 22 (id.). The Examiner states "that the weight percentage of glass

fibers are [sic, is a] result effective variables [sic, variable]" (id.). According to the Examiner, "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to create the base web having 10 to less than 50% by weight of glass fibers, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art" (id.).

Appellant argues that Kinsley "relates to a process for making paper based product containing a binder" that "does not include glass fibers" and "does nothing to address or alleviate the shortcoming noted above with respect to the primary reference to Heidweiller" (Brief, page 15). Appellant once more argues the claimed glass fiber content and PET fiber diameter limitations (Brief, paragraph bridging pages 15 and 16). The arguments concerning the claimed glass fiber content and PET fiber diameter limitations have been addressed above and we refer to our prior discussion for rebuttal thereof.

Regarding the argument as to Kinsley being related to a paper based product, we are not sure why this argument is relevant and Appellant does not explain why it supports the patentability of the claimed invention. On the other hand, the reference-combination under review is supported by the fact that Kinsley evinces that polyvinyl alcohol in powder form was known in the prior art and was known to be used in this form as a binder. Accordingly, we affirm this rejection.

**Rejection under 35 U.S.C. § 103(a) over Helwig '879**

Claims 1 and 6 stand rejected under 35 U.S.C. § 103(a) as being obvious over Helwig '879.

Helwig '879 is directed to a non-woven fiber mat comprising glass fibers and synthetic fibers (col. 2, lines 37-52). Helwig '879 teaches that the synthetic fiber may be polyester fibers (col. 2, lines 45 - 50) and that "[o]ne or more binders may be used to bind the reinforcement fibers" (col. 2, lines 53 - 55). Polyvinyl alcohol in powder form is listed among the binders that can be used (col. 2, lines 59 - 65). The binder "may include a preliminary binder to at least bind the reinforcement fibers" and "may include a secondary binder to bond together the reinforcement fibers to provide . . . substantial resistance to planar elongation and yet still allow a substantial degree of planar compressive movement" (col. 3, lines 47-54).

Example 5 of Helwig '879 discloses a non-woven fiber mat comprising 80% by weight of glass fibers (3200 g) and 20% by weight of polyethylene terephthalate fibers (800 g) bound by a polyvinyl alcohol binder per Example 1 and saturated with a secondary binder, per Example 4 (col. 8, lines 60-67). The Examiner calculates the diameter of the polyethylene terephthalate fibers of Example 5 to be 12.6 microns. The Examiner states that Helwig '879 does not teach a glass fiber content of about 10 to less than 50% by weight, a polyethylene terephthalate fibers content of about 50 to about 90% by weight, or a diameter for the polyethylene terephthalate fibers of about 6 to about 12 microns required by claim 1 (Answer, page 12). As with the rejection based on the

Heidweiller reference, the Examiner is of the position that "the combined total of polyvinyl alcohol and secondary binder in the web, the amount of PET fibers, the amount of glass fibers and the diameter of the PET fiber are result effective variables" (id.). According to the Examiner, "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to create [a] web [having] glass fibers in the amount of 10 to less than 50% by weight, the polyethylene terephthalate fibers [having] a diameter of from about 6 to 12 microns and are present in the amount of 50-90% by weight [as] required by claim 1, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art" (id.).

Appellant argues that Helwig '879 "fails to provide any specific ratio between" the combination of glass fibers and synthetic fibers (Brief, page 16). Appellant also states that Helwig '879 "is consistent with the longstanding industry standard of 50% or more glass fibers in a web as established in Heidweiller" (id.). In support of this statement, Appellant argues that 4 of the 5 examples in Helwig '879 include 100% glass fiber reinforcement while only Example 5 involves a mixture with 80% glass fiber (Brief, paragraph bridging pages 16 and 17). Appellant concludes that Helwig '879 "teaches away from the 10 to less than 50% by weight glass fibers explicitly recited . . . in claim 1" (id.). In addition, Appellant argues that the calculated diameter for Helwig '879's polyethylene terephthalate fiber of 12.6 microns "is greater than the about 6



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to about 12 microns for the diameter of the PET fibers explicitly set forth in present claim 1" (Brief, page 17).

As indicated by Appellant, Helwig '879 shows preference for having "most, if not all, of the reinforcement fibers to be made out of glass" (col. 2, lines 40-41). Further, it is true that Helwig '879 provides a single example of a non-woven fiber mats with less than 100% glass fibers. Nevertheless, it is significant that Helwig '879 expressly teaches "[i]t may even be possible for the reinforcement fibers to include only non-glass fibers" (Abstract). This teaching directly contradicts Appellant's above noted "industry standard" argument. Moreover, it has long been held that a reference is not limited to preferred embodiments. Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). Therefore, notwithstanding the preference of Helwig '879, the express teaching in the abstract militates against the Appellant's above discussed argument and for the Examiner's obviousness conclusion. It follows that we are unpersuaded by this argument.

Appellant's argument concerning the diameter of the polyethylene terephthalate fiber mirrors the same argument raised in the rejection based on the Heidweiller reference. We refer to our discussion above in response.

Claim 6 is not argued separately and, therefore, stands or falls with claim 1.

Accordingly, we sustain this rejection for the reasons given above.

**Rejection under 35 U.S.C. § 103(a) over Helwig '879 in view of Helwig '001**

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being obvious over Helwig '879 in view of Helwig '001.

According to the Examiner, Helwig '879 does not teach the use of an acrylic, ethylene vinyl acetate or any mixtures thereof as a secondary binder (Answer, page 13). The Examiner cites Helwig '001 as "directed to a wet-laid non-woven mat suitable for vinyl floor coverings (Abstract)" comprising "a base mat formed from a mixture of glass fibers, polymeric binder fibers and/or powder with a treatment of a second water-based polymeric binder composition" (id.). The Examiner relies on Helwig '001 to teach "the use of a secondary binder such as a vinyl acetate ethylene copolymer" in a wet-laid non-woven mat (id.). The Examiner concludes that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use vinyl acetate ethylene copolymer as suggested by Helwig '001 as the secondary binder of Helwig '879 to create [a] web with additional strength and dimensional stability during processing and possessing the desired level of compressive behavior which is crucial in floor covering applications" (id.).

Appellant repeats the arguments discussed previously concerning Helwig '879. These arguments are unconvincing for reasons earlier addressed.

Regarding Helwig '001, Appellant argues that this reference "discloses a mat wherein 100% of the reinforcement fibers are glass fibers" (Brief, page 19). In addition, Appellant argues

that "these teachings [of Helwig '879 and Helwig '001] very clearly diverge from the claimed invention" (id.). Further, Appellant argues that "[t]he secondary reference [i.e., Helwig '001] provides no teaching or suggestion whatsoever to indicate to one skilled in the art that such a secondary binder is appropriate for use where the reinforcement fibers include less than 50% glass and from about 50 to about 90% by weight of polyethylene terephthalate fibers as set forth in claim 1 from which claim 12 depend[s]" (id.).

We do not read Helwig '001 as disclosing a mat of only 100% glass fibers. Helwig '001 allows for a mat containing glass textile fibers, polymeric binder fibers . . . and optionally poly(vinyl alcohol) fibers (col. 1, lines 59-60). Included among the choices for polymeric binder powder is a bicomponent binder fiber "which has a polyester core and a polyolefin sheath" (col. 3, lines 63-65). Helwig '001 also suggests a glass fiber content between 50 to 90% and a binder fiber content of 10-50% (col. 2, lines 31-34). Therefore, contrary to Appellant's argument, Helwig '001 is not limited to a mat of only 100% glass fibers. Regardless, it is clear that Helwig '001 evinces that vinyl acetate ethylene copolymer was known in the prior art and was known to be used as a binder for non-woven fiber mats. It follows that Helwig '001 would have suggested the use of a vinyl acetate ethylene copolymer as a binder even if it only taught a mat of 100% glass fibers. Accordingly, we affirm this rejection.

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#### **Other Issues**

We note that the specification refers to a broad range for the glass fiber content of about 10 to about 80% (Specification, page 2) and to a preferred range for the glass fiber content of about 25 to about 40% (Specification, page 3). In our review of the record, however, we find no explanation of why the new limitation of a glass fiber content of less than 50% is considered to be descriptively supported by the specification. In any future prosecution that may occur, Appellant and the Examiner should address whether and how this limitation complies with the written description requirement of the first paragraph of 35 U.S.C. § 112.

In addition, for unknown reasons, claim 12 has not been rejected over Heidweiller in view of Helwig '001. In any future prosecution that may occur, the Examiner should consider whether such a rejection should be made.

#### **CONCLUSION**

The decision of the Examiner rejecting all appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

**AFFIRMED**

BRADLEY R. GARRIS

BRADLEY R. GARRIS  
Administrative Patent Judge

CATHERINE TIMM

CATHERINE TIMM  
Administrative Patent Judge

BOARD OF PATENT  
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INTERFERENCES

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